IN THE U.S. PATENT AND TRADEMARK OFFICE

Application No.:	09/651,792
Filing Date:	August 30, 2000
Applicants:	Hongbin JI et al.
Group Art Unit:	2616
Examiner:	Justin M. Philpott
Title:	CALL ADMISSION CONTROL WITH OVERBOOKING SUPPORT AND CELL LOSS RATIO AND CELL DELAY VARIATION GUARANTEE
Attorney Docket:	129250-001022/US

APPLICANTS'/APPELLANTS' BRIEF ON APPEAL (Corrected)

MAIL STOP APPEAL BRIEF - PATENTS
Customer Service Window
Randolph Building
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Alexandria, VA 22314

September 15, 2007

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APPELLANTS' BRIEF ON APPEAL

I. REAL PARTY IN INTEREST:

The real party in interest in this appeal is Lucent Technologies Inc. Assignment of the application was submitted to the U.S. Patent and Trademark Office and recorded at Reel 011140, Frame 0401.

II. RELATED APPEALS AND INTERFERENCES:

There are no known appeals or interferences that will affect, be directly affected by, or have a bearing on the Board's decision in this Appeal.

III. STATUS OF CLAIMS:

Claims 1-5, 8-13, 39-43 and 46-52 are pending in the application, with claims 1 and 39 being written in independent form. **Claims 6, 7, 44 and 45 have been canceled while claims 14-38 have been withdrawn.**

Claims 1-5, 8-12, 39-43, 46-50 and 52 remain finally rejected under 35 U.S.C. §102(e) and claims 13 and 51 remain finally rejected under 35 U.S.C. §103. Claims 1-5, 8-13, 39-43 and 46-52 are being appealed.

IV. STATUS OF AMENDMENTS:

A Request for Reconsideration ("Request") was filed on January 11, 2007. In an Advisory Action dated February 8, 2007, the Examiner stated that the Request was considered but did not place the application in condition for allowance.

V. SUMMARY OF CLAIMED SUBJECT MATTER:

(i). Overview of the Subject Matter of the Independent Claims

The present invention is directed at call admission control (CAC) for asynchronous transfer mode (ATM) or Internet Protocol (IP)-based networks that incorporate differentiated services (i.e., quality-of-service (QoS) levels). More specifically, independent claim 1 reads as follows (specification citations follow in parenthesis):

1. A method for controlling call admission to a communication system comprising:

assigning a unique overbooking factor to each of a plurality of service classes, thereby ensuring no two service classes have an identical overbooking factor;

determining an effective bandwidth for each class based in part on said assigned overbooking factor and either a cell delay variation for constant bit rate service classes or a cell loss ratio for variable bit rate service classes;

determining a value of a free bandwidth in said communication system based in part on said determined effective bandwidth for each service class; and

admitting or rejecting a call based on said determined value for said free bandwidth.

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(see specification, page 6, lines 3-19; page 8, lines 5-8; page 9, lines 1-4; page 11, lines 2-14, for example).

Independent claim 39 reads as follows:

39. An access terminal for performing call admission control for a communications system, comprising:

a multiplexer/demultiplexer unit; and

a programmed processor, coupled to said multiplexer/demultiplexer unit, operable to:

assign a unique overbooking factor to each of a plurality of service classes, thereby ensuring no two service classes have an identical overbooking factor;

determine an effective bandwidth for each class based in part on said assigned overbooking factor and either a cell delay variation for constant bit rate service classes or a cell loss for variable bit rate service classes;

determine a value of a free bandwidth in said communication system based in part on said determined effective bandwidth for each service class; and

admit or reject a call based on said determined value for said free bandwidth.

(see specification, page 6, lines 3-19; page 8, lines 5-8; page 9, lines 1-4; page 11, lines 2-14; page 20, lines 6-21; page 21, line 20 to page 22, line 1, for example).

In order to make the overview set forth above concise the disclosure that has been included, or referred to, above only represents a portion of the total disclosure set forth in the Specification that supports the independent claims.

(ii). The Remainder of the Specification Also Supports the Claims

The Appellants note that there may be additional disclosure in the Specification that also supports the independent and dependent claims. Further, by referring to the disclosure above the Appellants do not represent that this is the only evidence that supports the independent claims nor do Appellants necessarily represent that this disclosure can be used to fully interpret the claims of the present invention. Instead, this disclosure is an overview of the claimed subject matter.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

Appellants seek the Board's review and reversal of the rejection of claims 1-5, 8-12, 39-43, 46-50 and 52 under 35 U.S.C. §102(e) based on U. S. Patent No. 5,982,748 to Yin et al. ("Yin") and claims 13 and 51 under 35 U.S.C.

§103(a) based on Yin in view of U.S. Patent No. 6, 608,815 to Huang et al. ("Huang").

VII. ARGUMENTS:

A. The Section 102 Rejections Based on Yin

The Final Office Action states that claims 1-5, 8, 9, 12, 39-43, 46, 47, 50 and 52 have been rejected under 35 U.S.C. §102(e) based on Yin. Appellants believe the Examiner also intended to include claims 10, 11, 48 and 49 as well. Appellants will proceed on this basis unless the Examiner indicates otherwise. The Appellants respectfully request, however, that the Examiner clarify his position. As for the rejections, the Appellants respectfully disagree for at least the following reasons.

It is respectfully submitted that Yin does not disclose the feature of determining an effective bandwidth for each class of service based in part on an assigned overbooking factor and one of either a cell delay variation or cell loss.

In the Final Office Action, the Examiner relies on Yin as disclosing an "effective bandwidth" and directs the Appellants' attention to column 7, lines 25-35 of Yin in support of his position. Appellants respectfully submit, however, that these excerpts do not describe the claimed effective bandwidth. Instead, these excerpts define an allocation factor that is based on an "Actual Usage" parameter and/or a "subscribed bandwidth", A(i), parameter. Appellants submit that neither parameter is akin to, nor suggestive of, the claimed effective bandwidth.

More specifically, on pages 6 through 11 of the present specification the computations of effective bandwidth for CBR and VBR traffic classes are presented. With respect to CBR traffic, it is noted that an effective bandwidth may be computed based on a cell delay variation. Neither the Actual Usage nor the subscribed bandwidth parameters disclosed in Yin appear to be so

computed. For example, Yin discloses that the subscribed bandwidth parameter for CBR traffic is derived from "the sum of all PCR [peak cell rate] values" (column 6, lines 60-65), not from cell delay variations. As such, Yin represents the known method of using cell rates to compute a CBR bandwidth parameter. However, Yin fails to appreciate that, for CBR traffic, only the cell delay variation needs to be used. This was a discovery of the present inventors (see page 6, lines 13-22).

In the Advisory Action the Examiner refers the Appellants to column 3, line 45 to column 4, line 8 and Table 1 of Yin as disclosing a "subscribed bandwidth" based on "respective booking factors and respective cell variations, cell loss ratio." However, instead of recognizing that cell delay variations may directly be used to compute CBR effective bandwidths, Yin states that the variations are first used to "specify the Peak Cell Rate" (see Yin column 3, lines 63-64) which it then uses to calculate CBR bandwidths.

Because Yin does not disclose each and every feature of the rejected claims, it cannot be a basis for anticipating these claims under §102(e). Accordingly, Appellants respectfully request that the members of the Board reverse the decision of the Examiner, withdraw these rejections and allow claims 1-5, 8-12, 39-43, 46-50 and 52.

B.) <u>The Section 103 Rejections Based on Yin and Huang</u>

Claims 13 and 51 were rejected under 35 U.S.C. §103(a) as being unpatentable over Yin in view of Huang.

Initially it is noted that claim 13 depends from claim 1 and claim 51 depends from claim 39. In addition, it is noted that Huang does not make up for the deficiencies of Yin discussed above.

Accordingly, Appellants respectfully request that the members of the Board reverse the decision of the Examiner, withdraw these rejections and allow claims 13 and 51.

Conclusion:

Appellants respectfully request that members of the Board reverse the decision of the Examiner and allow claims 1-5, 8-13, 39-43 and 46-52.

The Commissioner is authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-3777 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. A method for controlling call admission to a communication system comprising:

assigning a unique overbooking factor to each of a plurality of service classes, thereby ensuring no two service classes have an identical overbooking factor;

determining an effective bandwidth for each class based in part on said assigned overbooking factor and either a cell delay variation for constant bit rate service classes or a cell loss ratio for variable bit rate service classes;

determining a value of a free bandwidth in said communication system based in part on said determined effective bandwidth for each service class; and

admitting or rejecting a call based on said determined value for said free bandwidth.

2. The method according to claim 1, wherein said step of determining a free bandwidth further comprises:

determining a maximum bandwidth at a port in the communication system; and

subtracting at least a portion of the effective bandwidth for each class from said maximum bandwidth.

3. The method according to claim 2, wherein said step of subtracting further comprises:

dividing the effective bandwidth for each class by its assigned overbooking factor to produce a result; and

subtracting said result from said maximum bandwidth.

4. The method according to claim 1, wherein said step of admitting or rejecting further comprises:

admitting said call if said free bandwidth is greater than zero.

5. The method according to claim 4, wherein said step of admitting or rejecting further comprises:

rejecting said call if said free bandwidth is less than zero.

6. (Cancelled).

7. (Cancelled).

8. The method according to claim 1, wherein said variable bit rate classes include a real time variable bit rate class.

9. The method according to claim 1, wherein said variable bit rate classes include a non-real time variable bit rate class.

10. The method according to claim 1, wherein said assigned overbooking factor has a default value indicating no overbooking.

11. The method according to claim 10, wherein said default value is 1.

12. The method according to claim 1, wherein said communication system is an ATM network.

13. The method according to claim 1, wherein said communication system is an IP network.

14. (Withdrawn) A method for performing bookkeeping in a communication system when a new connection setup is requested comprising:

calculating an effective bandwidth of the new connection to meet a first predetermined criteria;

calculating a variance for a traffic load of the new connection;

calculating a required bandwidth for all calls in the system to meet the first predetermined criteria based in part on said effective bandwidth and said variance of the new connection;

calculating an effective bandwidth of the new connection to meet a second predetermined criteria;

calculating a required bandwidth for all calls in the system to meet the second predetermined criteria;

calculating a required system bandwidth based on a maximum value for said required bandwidth for all calls in the system to meet the first predetermined criteria and said required bandwidth for all calls in the system to meet the second predetermined criteria;

comparing said required system bandwidth to a maximum bandwidth of said system; and

admitting or rejecting said call based on said comparison.

15. (Withdrawn) The method according to claim 14, further comprising:

updating state variables of the system if said call is admitted.

16. (Withdrawn) The method according to claim 14, wherein said step of admitting or rejecting further comprises:

admitting said call if said required system bandwidth is less than said maximum bandwidth.

17. (Withdrawn) The method according to claim 16, wherein said step of admitting or rejecting further comprises:

rejecting said call if said required system bandwidth is greater than said maximum bandwidth.

18. (Withdrawn) The method according to claim 14, wherein said first predetermined criteria is a cell loss ratio.

19. (Withdrawn) The method according to claim 18, wherein said second predetermined criteria is a cell delay variation.

20. (Withdrawn) The method according to claim 14, wherein said step of calculating an effective bandwidth of the new connection to meet a second predetermined criteria further comprises:

calculating an effective bandwidth of all calls in the system to meet the second predetermined criteria.

21. (Withdrawn) The method according to claim 20, further comprising:

updating state variables of the system if said call is admitted.

22. (Withdrawn) The method according to claim 20, wherein said step of admitting or rejecting further comprises:

admitting said call if said required system bandwidth is less than said maximum bandwidth.

23. (Withdrawn) The method according to claim 22, wherein said step of admitting or rejecting further comprises:

rejecting said call if said required system bandwidth is greater than said maximum bandwidth.

24. (Withdrawn) The method according to claim 20, wherein said first predetermined criteria is a cell loss ratio.

25. (Withdrawn) The method according to claim 24, wherein said second predetermined criteria is a cell delay variation.

26. (Withdrawn) The method according to claim 14, wherein said communication system is a wireless communication system.

27. (Withdrawn) A method for performing bookkeeping in a communication system when an existing call requests to be released from the system comprising:

calculating an effective bandwidth of the call requested to be released that satisfies a first predetermined criteria;

calculating a variance for a traffic load of the call requested to be released;

calculating a required bandwidth for all remaining calls in the system that satisfies the first predetermined criteria;

calculating an effective bandwidth of the call requesting to be released and all remaining calls in the system that satisfies a second predetermined criteria;

calculating a required bandwidth for all remaining calls in the system that satisfies the second predetermined criteria;

allocating a required system bandwidth based on a maximum value for said required bandwidth for all remaining calls in the system that satisfies the first predetermined criteria and said required bandwidth for all remaining calls in the system that satisfies the second predetermined criteria; and

releasing the call requesting to be released.

28. (Withdrawn) The method according to claim 27, wherein said step of calculating a variance further comprises:

updating state variables of the system based on said call requesting to be released.

29. (Withdrawn) The method according to claim 27, wherein said first predetermined criteria is a cell loss ratio.

30. (Withdrawn) The method according to claim 29, wherein said second predetermined criteria is a cell delay variation.

31. (Withdrawn) The method according to claim 27, wherein said communication system is an ATM network.

32. (Withdrawn) The method according to claim 27, wherein said communication system is an IP network.

33. (Withdrawn) A method for performing bookkeeping in a communication system when an existing call requests to be released from the system comprising:

determining an effective bandwidth that satisfies a first predetermined criteria for the call requesting to be released;

calculating a variance for a traffic load of the call requesting to be released for said first predetermined criteria;

calculating an effective bandwidth of the call requesting to be released that satisfies a second predetermined criteria;

calculating a variance for a traffic load of the call requesting to be released for said second predetermined criteria;

calculating a required bandwidth of all remaining calls in the system that satisfies the first predetermined criteria;

calculating an effective bandwidth of all remaining calls in the system that satisfies the second predetermined criteria;

allocating a required system bandwidth based on a maximum value for said required bandwidth for all remaining calls in the system that satisfies the first predetermined criteria and said required bandwidth for all remaining calls in the system that satisfies the second predetermined criteria; and

releasing the call requesting to be released.

34. (Withdrawn) The method according to claim 33, wherein said step of calculating a variance for a traffic load of the call requested to be released for said second predetermined criteria further comprises:

updating state variables of the system based on said call requesting to be released.

35. (Withdrawn) The method according to claim 33, wherein said first predetermined criteria is a cell loss ratio.

36. (Withdrawn) The method according to claim 35, wherein said second predetermined criteria is a cell delay variation.

37. (Withdrawn) The method according to claim 33, wherein said communication system is an ATM network.

38. (Withdrawn) The method according to claim 33, wherein said communication system is an IP network.

39. An access terminal for performing call admission control for a communications system, comprising:

a multiplexer/demultiplexer unit; and

a programmed processor, coupled to said multiplexer/demultiplexer unit, operable to:

assign a unique overbooking factor to each of a plurality of service classes, thereby ensuring no two service classes have an identical overbooking factor;

determine an effective bandwidth for each class based in part on said assigned overbooking factor and either a cell delay variation for constant bit rate service classes or a cell loss for variable bit rate service classes;

determine a value of a free bandwidth in said communication system based in part on said determined effective bandwidth for each service class; and

admit or reject a call based on said determined value for said free bandwidth.

40. The access terminal according to claim 39, wherein said processor is operable to:

determine a maximum bandwidth at a port in the communication system; and

subtract at least a portion of the effective bandwidth for each class from said maximum bandwidth.

41. The access terminal according to claim 40, wherein said processor is operable to:

divide the effective bandwidth for each class by its assigned overbooking factor to produce a result; and

subtract said result from said maximum bandwidth.

42. The access terminal according to claim 39, wherein said processor is operable to:

admit said call if said free bandwidth is greater than zero.

43. The access terminal according to claim 42, wherein said processor is operable to:

reject said call if said free bandwidth is less than zero.

44. (Cancelled).

45. (Cancelled).

46. The access terminal according to claim 39 ,wherein said variable bit rate classes include a real time variable bit rate class.

47. The access terminal according to claim 39 , wherein said variable bit rate classes include a non-real time variable bit rate class.

48. The access terminal according to claim 39, wherein said assigned overbooking factor has a default value indicating no overbooking.

49. The access terminal according to claim 48, wherein said default value is 1.

50. The access terminal according to claim 39, wherein said communication system is an ATM network.

51. The access terminal according to claim 39, wherein said communication system is an IP network.

52. The access terminal according to claim 39, wherein said access terminal is daisy chained to at least one other access terminal, each of said access terminals performing said method for controlling call admission independently of the other.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.